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*Adyston* 620  
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E ADDYSTON  
PIPE & STEEL CO.,  
CINCINNATI, OHIO.

*Foundry*



**Special Machinery**

of all descriptions.

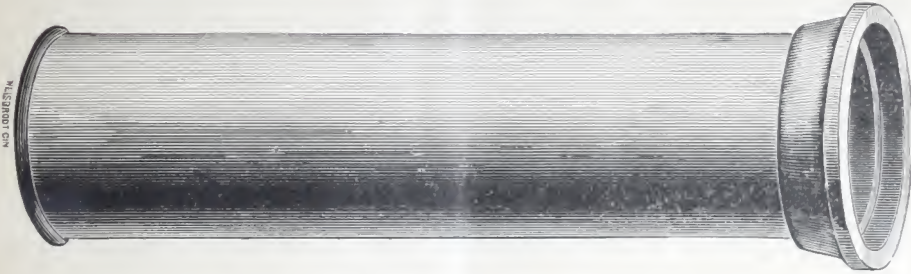
**Heavy Castings.**

KEEP THIS FOR REFERENCE.

# Weights of Cast Iron Pipe IN POUNDS.

Size in Inches.	STANDARD WATER PIPE.			STANDARD GAS PIPE.		
	Per Foot.	Thick- ness.	Per Length.	Per Foot.	Thick- ness.	Per Length.
2	7	$\frac{5}{16}$	63	6	$\frac{1}{4}$	48
3	15	$\frac{3}{8}$	180	12 $\frac{1}{2}$	$\frac{5}{16}$	150
3	17	$\frac{1}{2}$	204			
4	22	$\frac{1}{2}$	264	17	$\frac{3}{8}$	204
6	33	$\frac{1}{2}$	396	30	$\frac{7}{16}$	360
8	42	$\frac{1}{2}$	504	40	$\frac{7}{16}$	480
8	45	$\frac{1}{2}$	540			
10	60	$\frac{9}{16}$	720	50	$\frac{7}{16}$	600
12	75	$\frac{9}{16}$	900	70	$\frac{1}{2}$	840
14	117	$\frac{3}{4}$	1400	84	$\frac{9}{16}$	1000
16	125	$\frac{3}{4}$	1500	100	$\frac{9}{16}$	1200
18	167	$\frac{7}{8}$	2000	134	$\frac{11}{16}$	1600
20	200	$\frac{15}{16}$	2400	150	$\frac{11}{16}$	1800
24	250	1	3000	184	$\frac{3}{4}$	2200
30	350	1 $\frac{1}{8}$	4200	250	$\frac{3}{4}$	3000
36	475	1 $\frac{3}{8}$	5700	350	$\frac{7}{8}$	4200
42	600	1 $\frac{3}{8}$	7200	383	$\frac{7}{8}$	4600
48	775	1 $\frac{1}{2}$	9300	542	1 $\frac{1}{8}$	6500
60	1330	2	15960	900	1 $\frac{3}{8}$	10800

## CAST IRON CULVERT PIPE.



We wish to call the attention of railroad engineers and purchasing agents, county commissioners, city engineers, and all others interested in the construction of culverts and road crossings, to the exceptional advantages to be derived from the use of cast iron culvert pipe. To show what railroad men think of this pipe as compared with other culverts, we print an article which appeared in the issue of December 17th, 1892, of the *Railway Review* :

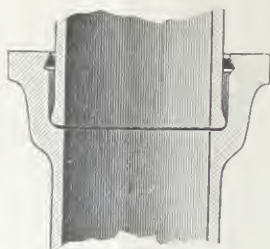
“The leading railway systems are generally doing away with small wooden trestles and substituting therefore culverts made of iron pipe. In the past year one road alone has taken out over a hundred bridges and replaced them with iron culverts. The iron pipe culverts have proved cheaper, more durable and more reliable than wooden structures or masonry, and their superiority to vitrified pipes is well attested. The principal advantages of this iron pipe for culvert purposes may be summarized as follows:”

“The iron pipe is *cheaper* to lay, as statistics have proved. It is *reliable*; many roads state that not a single pipe has been broken since its use was commenced a number of years ago. Each piece of pipe is twelve feet in length, this is a great advantage over the short vitrified pipe, as danger from undermining and of unequal settlement is thus practically eliminated by the few joints and the long bearing. With its smooth surface a larger and freer discharge can be obtained, thereby reducing the danger from washouts to a minimum. These culverts also require little or no attention after being once properly laid. It is *durable*, as the great strength of the pipe prevents crushing, and the coating with which iron culvert pipe is protected, entirely prevents rusting.”

“The committee appointed by the American International Association of Railway Superintendents of Bridges and Buildings on “Iron and Vitrified Pipe for Waterways under Railroad Embankments,” reported: “We believe the



argument is all in favor of the cast iron pipe for purpose named, as in our experience vitrified pipe will not withstand the action of the frost where exposed at the



SOCKET AND SPIGOT.

ends, and will cause pipe to crack even if well protected by masonry, also the joint being shorter is another argument against the successful use of vitrified pipe."

"The *Railway Review* has interviewed a number of chief engineers of railway systems relating to the use of iron pipe for culvert purposes and their answers as quoted below are significant in that they all advise the general adoption of this pipe."

"Mr. H. C. Draper, of the Chicago & Alton Railroad: "During the past year we have taken out no less than 100 wooden trestles and substituted therefore cast iron culvert pipe. I think the exact number is 109. We have used as high as 60 inch pipe with masonry protection at each end. I think we will put in at least 25 more this year. We never had a piece of pipe break, and these culverts have always given us complete satisfaction."

"Chief Engineer H. F. Baldwin, Chicago & Eastern Illinois Railroad: "We have doubled tracked to the extent of 50 miles this past summer, and in that territory have taken out all the small bridges and put in iron culvert pipe. The largest we used was 5 feet, though in the majority of cases they did not reach that size. I consider it cheaper and safer than any other method, and shall continue to use it."

"Chief Engineer George Kittredge, C., C., C. & St. L. R. R.: "We use this pipe extensively on our system. We have recently ordered a large quantity of 48 inch."

"Chief Engineer Nicholson, of the C., N. O. & T. P. R. R.: "We have been using cast iron pipe for culverts for some time past and believe it is just what we want. The results obtained are indeed satisfactory."

"A representative of the Chicago & Northwestern Railway stated that their road had been using iron pipe culverts for some time past and had found this

material to meet all the demands required and was in general highly satisfactory.

"Mr. Onward Bates, engineer and superintendent of bridges C., M. & St. P. R. R.: "This company has in use over 1,000 pipe culverts which give entire satisfaction. We have never had but one failure and that was because the metal was too thin and a 40-foot bank was filled in on top of it without properly tamping the sides of the culverts."

"We are putting in," said Mr. Bates, "iron pipe culverts at the rate of 200 to 300 a year. As a general rule iron pipe makes cheaper culverts than stone and has the advantage that we know what we are getting with iron. Little good stone can be obtained in the country that will withstand this northwestern climate. Iron pipe can also be put in much more expeditiously than stone, brick or concrete. It is especially adapted for the renewal of wooden culverts. In building our western railway lines it has largely been the custom to first make culverts of timber boxes, which last from eight to twelve years, then to draw through them iron pipe and tamp well, making a good job and about as economical a one as if there was no bank there and the filling was to be done afterwards. Most iron pipe put in by this company is laid in boxes. There is economy in getting the life out of the timber without increasing the expenditure in replacement by permanent work. We use iron pipe 20, 24, 30, 36, 42, 48 and 60 inch diameter."

"The Addyston Pipe and Steel Co., of Cincinnati, O., were among the first to call attention to the advantages to be derived from the use of iron pipe for culverts, and by careful attention to the specifications of the engineers and by keeping a full stock of pipe on hand the requirements of the railroads have been met most satisfactorily by them."

We could print endorsements from officers of a great many other roads, but they would simply be repetitions of the ideas expressed in the above article.

We keep a large stock of culvert pipe on hand, and are always glad to quote prices for estimates or at the time when purchases are to be made.

#### TURNPIKE CULVERTS.

For use as culverts and road crossings on county roads or in cities, iron pipe is without parallel on account of its *cheapness* in laying, *durability*, *reliability* and the short time required to lay it. A great number of county commissioners through the country now use no other kind of culverts, as they have found by experience that cast iron meets their requirements much more satisfactorily than vitrified pipe or stone. We print on the next page a few of the endorsements we have received from county commissioners in Ohio alone.

We are prepared to ship pipe of any standard size at short notice, and will be glad to quote prices at any time.

Upper Sandusky, O., March 23rd, 1893.

*The Addyston Pipe and Steel Co., Cincinnati, O.,*

In compliance with your request, as to our experience with your iron pipe, will say we have used it for the last two years in sizes varying from 1 to 3 feet and are well pleased with it. Is easily and rapidly laid, and we think much cheaper than stone culverts.

Respectfully,

A. C. Hershberger, }  
John Casey, } Commissioners, Wyandot County.  
Miles Mullholand, }

Greenville, O., March 25th, 1893.

*The Addyston Pipe and Steel Co., Cincinnati, O.,*

Gents—Your inquiry in regard to our knowledge of cast sewer pipe received, and in reply will say we have been using cast pipe for about three years in our county for culverts and find them to be durable, easy to lay, and for small culverts, say less than thirty inches, to be a great deal cheaper than stone. Would recommend their use for drainage.

A. Kercher, }  
P. J. Plessinger, } Commissioners, Darke County.

Sidney, O., March 23rd, 1893.

*The Addyston Pipe and Steel Co., Cincinnati, O.,*

Gentlemen—We have been using your cast iron sewer pipe for the six years that I have been a member of the Board of Commissioners; considerable of it was used some years before, and I find it all standing the test well. I feel that I can not recommend it too highly. You may feel free to refer any one to me.

Very respectfully,

Thomas Hickey, Commissioner, Shelby County.

Ottawa, O., March 27th, 1893.

*The Addyston Pipe and Steel Co., Cincinnati, O.,*

Gents—We have innumerable places where your cast iron pipe can be used. We have used your pipe in many places, and thereby saved our county 25 per cent. of what it would have cost the county to build stone culverts. Please send circular and price list as soon as issued.

Yours, etc.,

W. W. Agner,

President of Board of Commissioners, Putnam County.

Bucyrus, O., March 27th, 1893.

*The Addyston Pipe and Steel Co., Cincinnati, O.,*

Gentlemen—Your letter of 21st inst. at hand and contents noted; in reply will say that we have used several car loads of your iron pipe for road crossings and are well satisfied with their use. We find that they are fully as cheap as good stone work, and cheaper than stone where stone have to be shipped or drawn long distances. We also find that they are better adapted for road crossings than stone where the road beds are level, as stone work requires more of a fill to protect it, and in our opinion iron pipe will last and be more durable than stone work.

Very respectfully yours,

Henry Dapper, }  
John Parcher, } Commissioners, Crawford County.  
Lewis Gearhart, }



## SEWER AND STREET CASTINGS.

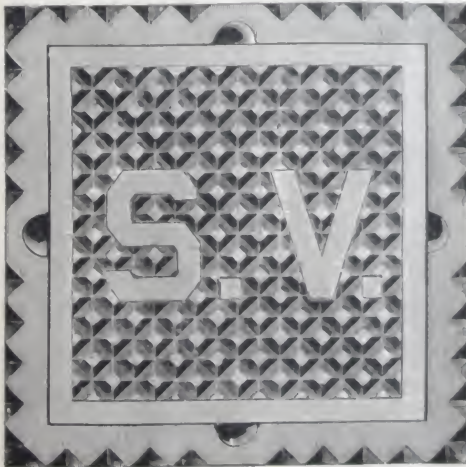
We also wish to call your attention to the fact that we have a large variety of patterns for manhole frames and covers, valve boxes and covers, gutter plates, etc. In inquiring for prices please state which pattern you prefer and how many castings you expect to purchase. If you do not care for any of the cuts which we print herewith, we will take pleasure in submitting other designs to you, or quote you on your own design.

## MAN-HOLE CASTINGS, OR LARGE VALVE-BOX.



	No. 1.	No. 2.
Height.....	14 in.	14 in.
Diam. of flange.....	38 in.	32 in.
Diam. of cover.....	24 in.	18 in.
Weight (approx.)	460 lbs.	370 lbs.

## STOP VALVE-BOX AND COVER.



	No. 3.
Cover.....	20 1/2 in. sq.
Height.....	5 in.
Weight.....	265 lbs.

## FRAME AND COVER.

No. 4.



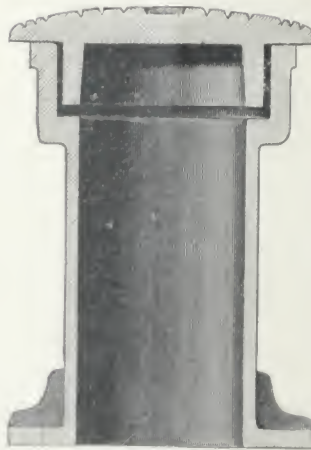
Size, 17 x 21 inches.

Height of frame,  $4\frac{1}{2}$  inches.

Weight about 230 lbs.

## VALVE BOX.

Nos. 5 &amp; 6.

No. 5, smallest diameter  $7\frac{1}{4}$  in.

Height of frame 15 in.

Weight 170 pounds.

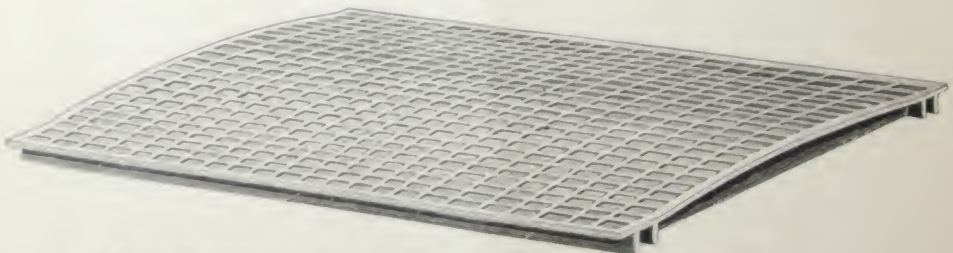
No. 6, smallest diameter  $9\frac{3}{4}$  in.

Height of frame 18 in.

Weight 220 pounds.

## GUTTER PLATES AND CROSSINGS.

No. 7.



We make gutter plates of the above design in any lengths you desire.



## THE ADDYSTON REVERSIBLE ROAD ROLLER.

(See cut on cover)

We print a cut showing the general construction of the improved Reversible Road Rollers which we have recently placed upon the market. We manufacture these road rollers of different weights and dimensions, to suit the demands of our customers; we find, however, that the five ton roller, 63 inches in diameter, is the most popular. The large diameter is of great advantage, as it crushes all of the surface dirt, instead of pushing it in front of it as a smaller roller will do; the large diameter also prevents the roller from becoming "stalled" in soft places. One of the great advantages of the roller is the ingenious and simple way by which the tongue is made reversible. The tongue is fastened to a wrought iron ring which can be revolved around the belt of the roller. After a haul has been made and the driver wishes to return over the road, he simply removes a pin; this allows the wrought iron ring (to which the tongue is attached) to revolve. He can then change his direction without detaching the tongue or moving the body of the roller. This is a very quick way of turning and is a saving on the horses, as it is hard work turning a heavy roller, and a saving on the road, as it does not tear it up in turning.

There is a weight at the rear that counter-balances the pole.

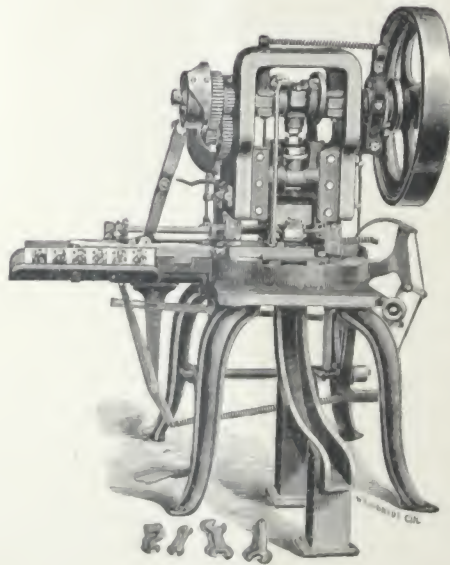
Another decided advantage of the roller is that it has solid heads. The advantage of this is apparent. When a roller is cast with spokes or braces, there is always a line of weakness in the iron where the spokes join the roll—those who have used rollers of this kind know how often they need repairs. But a roller with solid heads has no weak places to break.

The device usually used to increase the weight of a roller, is to have boxes on the sides which can be filled with weights. This is inconvenient and ungainly. Our roller is so arranged with solid heads that it can be filled with water, thus increasing the weight of a five ton roller to eight tons. The water can be easily drained out when not needed. The axle moves in roller bearings; this diminishes the friction of the load and makes the roller easy to haul. The roller is equipped with suitable brakes and scrapers. For *Compactness, Durability and Ease of Traction*, there is no roller in the market that can rival ours.

## FORSTER'S ROCK BREAKER.

This breaker is admirably adapted for road material. It can be readily adjusted so that the product will be of any desired coarseness. Prices furnished on application.

## SPECIAL MACHINERY.



We are now manufacturing special machinery of all descriptions from designs furnished by our customers. As we operate two machine foundries and large machine shops, we are enabled to turn out work satisfactorily and promptly. The cut printed above is an example of the delicate machinery we have made. While we are prepared to do work of this kind at any time, we pay more attention to the manufacture of **HEAVY MACHINERY FOR ALL PURPOSES.** Please send us drawings and ask for prices.

# STANDARD SPECIALS. (Approx. Weight.)

Crosses.		Tees.		Tees.		90° Elbows.		Reducers.		Plugs.	
Size in In.	Wt. in Lbs.	Size in In.	Wt. in Lbs.	Size in In.	Wt. in Lbs.	Size in In.	Wt. in Lbs.	Size in In.	Wt. in Lbs.	Size in In.	Wt. in Lbs.
2	40	2	28	24x12	1425	2	14	3x2	35	2	2
3	104	3	76	24x8	1375	3	34	4x3	42	3	5
4	90	4	76	24x6	1375	4	48	4x2	40	4	8
4	150	4	100	30	3025	6	110	6x4	95	6	12
4x3	114	4x3	90	30x24	2640	8	145	6x3	80	8	26
4x2	110	4x2	87	30x20	2200	10	225	8x6	126	10	46
6	200	6	150	30x12	2035	12	370	8x4	116	12	66
6x4	150	6x4	130	30x10	2050	14	450	8x3	116	14	70
6x3	150	6x3	125	30x6	1825	16	525	10x8	212	16	100
8	325	8x2	120	36	5140	20	900	10x6	150	20	150
8x6	265	8	266	36x30	4200	24	1400	10x4	128	24	185
8x4	265	8x6	252	36x12	4050			12x10	278	30	370
8x3	225	8x4	222					12x8	254		
10	510	8x3	220					12x6	250		
10x8	415	10	390					12x4	250		
10x6	388	10x8	330					14x12	475		
10x4	338	10x6	312					14x10	430		
10x3	350	10x4	292					14x8	340		
12	700	10x3	290					14x6	285		
	650	12	565					16x12	475		
12x10	615	12x10	510					16x10	435		
12x8	615	12x8	492					20x16	690		
12x6	540	12x6	484					20x14	575		
12x4	525	12x4	460					20x12	540		
12x3	495	14x12	650					20x8	300		
14x10	750	14x10	650					24x20	745		
14x8	635	14x10	650					30x24	1305		
14x6	570	14x8	575					30x18	1385		
16	1025	14x6	545					36x30	1730		
16x14	1070	14x4	525								
16x12	1025	14x3	490								
16x10	1010	16	790								
16x8	825	16x14	850								
16x6	700	16x12	825								
16x4	650	16x10	890								
20	1790	16x8	755								
20x12	1370	16x6	630								
20x10	1225	16x4	655								
20x8	1000	20	1375								
20x6	1000	20x16	1115								
20x4	1000	20x12	1025								
24	2190	20x10	1090								
24x20	2020	20x8	900								
24x6	1340	20x6	875								
30x20	2635	20x4	845								
30x12	2250	21x10	1465								
30x8	1995	24	1875								

## Caps.

3	15
4	25
6	60
8	75
10	100
12	120

## Drip Boxes.

4	235
8	355
10	760
20	1420

## Angle Reducers for Gas.

Flange Specials

of all sizes

Promptly

Furnished.

## 1-16 or 2 1/2° Bends.

6	150
8	155
10	165
12	260
16	500
24	1280
30	1735

## S Pipes.

4	90
6	190





Patent applied for.

**Addyston Reversible Road Roller.**